

What is claimed is:

1. A method of making a coated article, comprising the steps of:
providing a substrate;
forming at least one conductive coating over at least a portion of the substrate, the conductive coating having a thickness in the range of greater than 0 Å to less than 25,000 Å; and
electrodepositing at least one polymeric coating over at least a portion of the conductive coating.
2. The method of claim 1, wherein the substrate is made of a non-conductive material.
3. The method of claim 1, wherein the substrate is selected from glass and plastic.
4. The method of claim 1, wherein the substrate is tempered or annealed glass.
5. The method of claim 1, wherein the substrate is a bent substrate.
6. The method of claim 1, wherein the substrate is a bent substrate and the method includes:
forming the conductive coating over at least a portion of the bent substrate; and
forming the polymeric coating over at least a portion of the conductive coating.

7. The method of claim 1, including:
bending the substrate to a desired shape after formation of the
conductive coating; and
forming the polymeric coating over the conductive coating on the bent
substrate.
8. The method of claim 1, wherein the conductive coating has a sheet
resistance in the range of greater than 0 ohm/square to 1,000 ohms/square.
9. The method of claim 1, wherein the conductive coating has a sheet
resistance in the range of greater than 0 ohm/square to 30 ohms/square.
10. The method of claim 1, wherein the conductive coating has a sheet
resistance in the range of greater than 0 ohm/square to 15 ohms/square.
11. The method of claim 1, wherein the conductive coating is an inorganic
coating.
12. The method of claim 1, wherein the conductive coating includes at
least one metal layer.
13. The method of claim 12, wherein the metal layer includes silver.
14. The method of claim 1, wherein the conductive coating includes a
multi-layer coating stack having at least one metal layer and at least one
dielectric layer.
15. The method of claim 1, including depositing the conductive coating by
a process selected from chemical vapor deposition or physical vapor
deposition.

16. The method of claim 1, wherein the polymeric coating has a thickness in the range of 0.2 mils to 1.5 mils.
17. The method of claim 1, including laminating another substrate to the article using the polymeric coating.
18. The method of claim 1, wherein the substrate is non-conductive and the method includes electrically charging the conductive coating to electrodeposit the polymeric coating.
19. The method of claim 1, further including:
 - deleting at least a portion of the conductive coating to form a plurality of conductive coating regions; and
 - selectively electrically charging one or more of the coating regions to selectively electrocoat the charged coating regions.
20. The method of claim 19, wherein the deleting step includes at least one of masking, laser deletion, mechanical deletion, chemical deletion, or solvent deletion.
21. The method of claim 15, including depositing the conductive coating by magnetron sputter vapor deposition.
22. A method of making a coated article, comprising the steps of:
 - providing a substrate having at least one conductive coating formed over at least a portion of the substrate, the conductive coating having a thickness in the range of greater than 0 Å to less than 25,000 Å; and

electrodepositing at least one polymeric coating over at least a portion of the conductive coating.

23. A method of making a coated article, comprising the steps of:
 - providing a non-conductive first substrate, wherein the first substrate comprises glass;
 - forming at least one conductive coating over at least a portion of the first substrate by a process selected from chemical vapor deposition or physical vapor deposition, the conductive coating having a thickness in the range of greater than 0 Å to less than 25,000 Å; and
 - electrodepositing at least one polymeric coating over at least a portion of the conductive coating.
24. The method of claim 23, including depositing the conductive coating by magnetron sputter vapor deposition.
25. A method of making a coated article, comprising the steps of:
 - providing a non-conductive substrate;
 - applying at least one inorganic, conductive coating over at least a portion of the substrate; and
 - electrodepositing at least one electrocoat over at least a portion of the conductive coating.
26. A method of making a coated article, comprising the steps of:
 - providing a substrate having a plurality of conductive coating regions; and
 - selectively depositing one or more electrodeposable coating materials over the conductive coating regions.

27. A process for forming a multi-layer composite coating over a substrate, the process comprising:

forming a conductive coating over at least a portion of the substrate by a process selected from chemical vapor deposition or physical vapor deposition; and

forming at least one polymeric coating over at least a portion of the conductive coating by electrodeposition.

28. The method of claim 27, including depositing the conductive coating by magnetron sputter vapor deposition.

29. A coated article, comprising:

a first substrate;

at least one conductive coating formed over at least a portion of the first substrate, the conductive coating having a thickness in the range of greater than 0 Å to less than 25,000 Å; and

at least one polymeric coating electrodeposited over at least a portion of the conductive coating.

30. The article of claim 29, wherein the substrate is non-conductive.

31. The article of claim 29, wherein the substrate is selected from glass and plastic.

32. The article of claim 29, wherein the substrate is tempered or annealed glass.

33. The article of claim 29, wherein the substrate is a bent substrate.

34. The article of claim 29, wherein the conductive coating has a sheet resistance in the range of greater than 0 ohm/square to 1,000 ohms/square.

35. The article of claim 29, wherein the conductive coating has a sheet resistance in the range of greater than 0 ohm/square to 30 ohms/square.

36. The article of claim 29, wherein the conductive coating has a sheet resistance in the range of greater than 0 ohm/square to 15 ohms/square.

37. The article of claim 29, wherein the conductive coating is an inorganic coating.

38. The article of claim 29, wherein the conductive coating includes at least one metal layer.

39. The article of claim 29, wherein the conductive coating includes a multi-layer coating stack having at least one metal layer and at least one dielectric layer.

40. The article of claim 29, wherein the conductive coating is a solar control coating.

41. The article of claim 29, wherein the polymeric coating has a thickness in the range of 0.2 mils to 1.5 mils.

42. The article of claim 29, including another substrate laminated to the article using the polymeric coating.

43. A coated article, comprising:
- a non-conductive first substrate, wherein the first substrate comprises glass;
 - at least one conductive coating formed over at least a portion of the first substrate by a process selected from chemical vapor deposition or physical vapor deposition, the conductive coating having a thickness in the range of greater than 0 Å to less than 25,000 Å; and
 - at least one polymeric coating electrodeposited over at least a portion of the conductive coating.
44. The article of claim 43, wherein the conductive coating is deposited by magnetron sputter vapor deposition.
45. The article of claim 43, wherein the conductive coating comprises:
- a first dielectric layer comprising at least one metal oxide, metal alloy oxide, metal nitride, metal oxynitride, or mixtures or combinations thereof;
 - a metal layer deposited over the first dielectric layer, the metal layer comprising at least one metal selected from the group consisting of gold, copper, silver, or mixtures or alloys, or combinations containing at least one thereof; and
 - a second dielectric layer deposited over the metal layer, the second dielectric layer comprising at least one metal oxide, metal alloy oxide, metal nitride, metal oxynitride, or mixtures or combinations thereof that may be the same or different than that of the first dielectric layer.

46. A coated article, comprising:
- a substrate;
 - at least one inorganic, conductive coating formed over at least a portion of the substrate; and
 - an electrocoat electrodeposited over the conductive coating.
47. The article of claim 46, wherein the conductive coating comprises:
- a first dielectric layer comprising at least one metal oxide, nitride, oxynitride, or mixture thereof;
 - a metal layer deposited over the first dielectric layer, the metal layer comprising at least one metal selected from the group consisting of gold, copper, silver, or mixtures or alloys, or combinations containing at least one thereof; and
 - a second dielectric layer deposited over the metal layer, the second dielectric layer comprising at least one metal oxide, nitride, oxynitride, or mixture thereof that may be the same or different than that of the first dielectric layer.
48. A coated article, comprising:
- a substrate;
 - a plurality of conductive coating regions formed over the substrate; and
 - one or more electrocoats selectively electrodeposited over the conductive coating regions.